SECTION 08700--DOOR HARDWARE

PART 1--GENERAL

SUMMARY:

This Section includes items known commercially as finish or door hardware that are required for swing, sliding, and folding doors, except special types of unique hardware specified in the same sections as the doors and door frames on which they are installed.

Section Includes: Work includes, but is not limited to furnishing and installing:

- Hinges
- Lock and latch sets
- Bolts
- Exit devices
- Push/pull units
- Closers
- Miscellaneous door control devices
- Protection plates
- Weatherstripping for exterior doors
- Sound and smoke stripping for interior doors
- Automatic drop seals (door bottoms)
- Astragals or meeting seals on pairs of doors
- Thresholds

Related Sections: The following Sections contain requirements that relate to this Section:

Section 08110, Steel Doors and Frames for silencers integral with hollow metal frames and for door and frame reinforcements for surface-mounted hardware.

Section 08210, Flush Wood Doors for factory prefitting, factory premachining of doors for door hardware, and door reinforcements for surface-mounted hardware.

Products furnished and installed by the Contractor, and are not part of the work of this Section, include:

- Cylinders for locks on entrance doors.
- Final interchangeable cores and keys.

REFERENCES:

The following documents, including others referenced therein, form part of this Section to the extent designated herein:

AMERICAN NATIONAL STANDARDS INSTITUTE/BUILDERS HARDWARE MANUFACTURERS ASSOCIATION (ANSI/BHMA)

ANSI/BHMA A117.1	Building and Facilities—Providing Accessibility and Usability for Handicapped People.
ANSI/BHMA A156.1	Butts and Hinges.
ANSI/BHMA A156.2	Bored and Preassembled Locks and Latches
ANSI/BHMA A156.3	Exit Devices.
ANSI/BHMA A156.4	Door Controls - Closer.
ANSI/BHMA A156.5	Auxiliary Locks and Associated Products.
ANSI/BHMA A156.7	Template Hinge Dimensions.
ANSI/BHMA A156.8	Door controls - Overhead Holders.
ANSI/BHMA A156.12	Interconnected Locks and Latches.
ANSI/BHMA A156.13	Mortise Locks and Latches.
ANSI/BHMA A156.15	Closer Holder Release Devices.
ANSI/BHMA A156.16	Auxiliary Hardware.
ANSI/BHMA A156.18	Materials and Finishes.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 1056	Standard Specification for Flexible Cellular Materials - Sponge or Expanded Rubber.

DOOR AND HARDWARE INSTITUTE (DHI)

DHI	Recommended Locations for Builder's Hardware for Standard Steel Doors and Frames.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 80	Fire Doors and Windows.

NATIONAL WOOD WINDOW AND DOOR ASSOCIATION (NWWDA)

NWWDA I.S.7	Hardware locations for Wood Flush Doors.

UNDERWRITERS' LABORATORIES (UL)

SUBMITTALS:

Submittals include, but are not limited to the following:

Hardware Schedule: Submit a proposed hardware schedule with the following submittal requirements:

Final Hardware Schedule Content: Based on hardware indicated, organize schedule into "hardware sets" indicating complete designations of every item required for each door or opening. Include the following information.

- Type, style, function, size, and finish of each hardware item.
- Name and manufacturer of each item.
- Fastenings and other pertinent information.
- Location of each hardware set cross referenced to indications on Drawings both on floor plans and in door and frame schedule.
- Explanation of all abbreviations, symbols, and codes contained in schedule.
- Mounting locations for hardware.
- Door and frame sizes and materials.

See Section 01300, Submittals and the Vendor Data Schedule for additional submittal requirements.

PRODUCT HANDLING:

Tag each item or package separately with identification related to final hardware schedule, and include basic installation instructions with each item or package.

Packaging of door hardware is responsibility of supplier. As material is received by hardware supplier from various manufacturers, sort and repackage in containers clearly marked with appropriate hardware set number to match set numbers of approved hardware schedule. Two or more identical sets may be packed in same container.

Inventory door hardware jointly with representatives of hardware supplier and hardware installer until each is satisfied that count is correct.

Deliver individually packaged door hardware items promptly to place of installation (shop or Project site).

QUALITY CONTROL:

Regulatory Requirements (Codes and Standards): Comply with provisions of the following codes and standards, unless otherwise specified herein:

Americans with Disabilities Act

Single Source Responsibility: Obtain each type of hardware (latch and lock sets, hinges, closer, etc.) from a single manufacturer.

Supplier Qualifications: A recognized architectural door hardware supplier, with warehousing facilities in the Project's vicinity, that has a record of successful in-service performance for supplying door hardware similar in quantity, type, and quality to that indicated for this Project and that employs an experienced architectural hardware consultant (AHC) who is available to the Contractor and the Subcontractor, at reasonable times during the course of the Work, for consultation. Require supplier to meet with the Contractor to finalize keying requirements and to obtain final instructions in writing.

Fire-Rated Openings: Provide door hardware for fire-rated openings that complies with NFPA Standard No. 80 and requirements of authorities having jurisdiction. Provide only items of door hardware that are listed and are identical to products tested by UL, Warnock Hersey or FM, for use on types and sizes of doors indicated in compliance with requirements of fire-rated door and door frame labels.

PART 2--PRODUCTS

MANUFACTURERS: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:

Butts and Hinges	McKinney Products Co. Stanley Hardware, Div. Stanley Works
Cylinders and Locks	Best Lock Corp. Schlage Lock, Div. Ingersoll-Rand Door Hardware Group
Bolts	Glynn-Johnson Corp. H. B. Ives, A Harrow Company Stanley Hardware, Div. Stanley Works
Exit/Panic Devices	Adams Rite Manufacturing Co. Dor-O-Matic Sargent Manufacturing Company
Push/Pull Units:	Baldwin Hardware Corp Hiawatha, Inc.

	H. B. Ives, A Harrow Company
Overhead Closer:	LCN, Div. Ingersoll-Rand Door Hardware Group Rixson-Firemark, Div. Yale Security Inc.
Smoke-Activated Closer:	LCN, Div. Ingersoll-Rand Door Hardware Group Rixson-Firemark, Div. Yale Security Inc
Door Control Devices:	Glynn-Johnson Corp. H. B. Ives, A Harrow Company
Electromagnetic Door Holders:	LCN, Div. Ingersoll-Rand Door Hardware Group Rixson-Firemark, Div. Yale Security Inc.
Kick, Mop, and Armor Plates:	Baldwin Hardware Corp. H. B. Ives, A Harrow Company
Door Stripping, Seals, Thresholds, Drop Seals, Sound Stripping and Astragals:	Pemko Manufacturing Co., Inc. Zero International, Inc.

SCHEDULED HARDWARE:

General: Requirements for design, grade, function, finish, size and other distinctive qualities of each type of door hardware is indicated in the Hardware Schedule at the end of this section. Products are identified by using hardware designation numbers as shown in the following: (Products other than those specified will be considered and approved if equal in all respects.)

Manufacturer's Product Designations: Provide either the designated product of the manufacturer indicated for each type of hardware listed or the comparable product of one of the other manufacturers that complies with requirements and is accepted by the Contractor as "or equal" to the designated product. Provide products for each type of hardware complying with referenced quality standards as specified under the Article "Quality Control" in Part 1 and requirements specified elsewhere in this Section.

Panic Hardware: Panic hardware shall have forged internal working parts and be opened under a maximum pressure of 15 pounds.

Quality Standards:

Butts and Hinges: ANSI A156.1

Locks and Lock Trim: ANSI A156.2
Exit Devices: ANSI A156.3
Door Controls--Closer: ANSI A156.4
Architectural Door Trim: ANSI A156.6
Template Hinge Dimensions: ANSI A156.7
Door Controls - Overhead Holders: ANSI A156.8
Thresholds, Kick Plates: ANSI A156.6
Material and Finishes: BHMA 1301.

MATERIALS AND FABRICATION:

Hand of Door: The drawings show the direction of swing or hand of each door leaf. Furnish each item of hardware for proper installation and operation of the door movement as shown.

Base Metals: Produce hardware units of the basic metal and forming method indicated, using the manufacturer's standard metal alloy, composition, temper and hardness. Do not furnish "optional" materials or forming methods for those indicated, except as otherwise specified. Comply with basic metal and forming method requirements of NFPA 80 and UL or Warnock Hersey or FM for hardware units on fire-rated door assemblies.

Fasteners: Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation. Do not provide hardware that has been prepared for self-tapping sheet metal screws, except as specifically indicated.

Furnish screws for installation with each hardware item. Provide Phillips flat-head screws except as otherwise indicated. Finish exposed (exposed under any condition) screws to match hardware finish or, if exposed in surfaces of other work, to match finish of this other work as closely as possible including "prepared for paint" surfaces to receive painted finish. Provide concealed fasteners for hardware units that are exposed when door is closed except to the extent no standard units of type specified are available with concealed fasteners. Do not use thru-bolts for installation where bolt head or nut on opposite face is exposed in other work unless their use is the only means of reinforcing the work adequately to fasten the hardware securely. Where thru-bolts are used as a means of reinforcing the work, provide sleeves for each thru-bolt or use sex screw fasteners.

HINGES, BUTTS, AND PIVOTS:

Number of Hinges: Provide number of hinges indicated but not less than 3 hinges per door leaf for doors 90 inches or less in height and one additional hinge for each 30 inches of additional height.

LOCKS, LATCHES, AND BOLTS:

Lock Throw: Provide 5/8-inch minimum throw of latch on pairs of doors. Comply with UL requirements for throw of bolts and latch bolts on rated fire openings. Provide 3/4-inch minimum throw of latch for mortise locks. Provide 1-inch minimum throw for all dead bolts.

Interchangeable Core: Provide lock sets and cylinders compatible with Government-furnished and installed Best Universal Lock Co. Inc. 7-pin interchangeable cores and No. 1EC4 cams.

CLOSER AND DOOR CONTROL DEVICES:

Size of Units: Except as otherwise specifically indicated, comply with the manufacturer's recommendations for size of door control unit depending on size of door, exposure to weather, and anticipated frequency of use. Where parallel arms are indicated for closer, provide closer unit one size larger than recommended for use with standard arms. Provide parallel arms for all exterior overhead closers and track arms for all interior overhead closers, except as otherwise indicated. Provide extended spindle on closer as may be necessary to accommodate thickness of frame-mounted hardware.

Access-Free Manual Closer: Where manual closers are indicated for doors required to be accessible to the physically handicapped, provide adjustable units complying with ANSI A117.1 provisions for door opening force and delayed action closing.

Electromagnetic Door Holders: Provide units designed to hold door in open position under normal usage and to release and close door automatically under fire conditions. Incorporate a separate electromagnetic holder mechanism designed for use with UL listed smoke/fire detectors, provided with normally closed switching contacts.

WEATHERSTRIPPING AND SEALS:

General: Provide continuous weatherstripping on exterior doors and smoke, light, or sound seals on interior doors where indicated or scheduled. Provide only those units where resilient or flexible seal strip is easily replaceable and readily available from stocks maintained by manufacturer.

HARDWARE FINISHES:

Provide matching finish for hardware units at each door or opening. Reduce differences in color and textures as much as commercially possible where the base metal or metal forming process is different for individual units of hardware exposed at the same door or opening. In general, match items to the manufacturer's standard finish for the latch and lock set (or push-pull units if no latch or lock sets) for color and texture.
Provide quality of finish, including thickness of plating or coating (if any), composition, hardness and other qualities complying with manufacturer's standards, but in no case less than specified for the applicable units of hardware by referenced standards.

The designations used in schedules and elsewhere to indicate hardware finishes are the industry-recognized standard commercial finishes, except as otherwise noted.

The designations used in schedules and elsewhere to indicate hardware finishes are those listed in ANSI/BHMA A156.18, "Materials and Finishes," including coordination with the traditional U.S. finishes shown by certain manufacturers for their products.

PART 3--EXECUTION

INSTALLATION:

Mount hardware units at heights indicated in following applicable publications, except as specifically indicated or required to comply with governing regulations and except as otherwise directed by the Contractor.

Steel Doors and Frames: "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute.

Flush Wood Doors: "Recommended Locations for Builders Hardware for Custom Steel Doors and Frames" by the Door and Hardware Institute.

Install each hardware item in compliance with the manufacturer's instructions and recommendations. Wherever cutting and fitting is required to install hardware onto or into surfaces which are later to be painted or finished in another way care shall be taken to prevent scuffing. Coordinate removal, storage and reinstallation or application of surface protections with finishing work specified in the Division 9 sections. Do not install surface-mounted items until finishes have been completed on the substrate.

Set until level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.

Drill and counter sink units that are not factory-prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards. Do not use thru-bolting for installing surface-mounted hardware units, except as otherwise scheduled or specified elsewhere in this Section.

Set thresholds for exterior doors in full bed of butyl-rubber or polyisobutylene mastic sealant.

Install electromagnetic holders according to manufacturer's written instructions and in coordination with Division 16 Sections for electrical requirements.

ADJUST AND CLEAN:

Adjust and check each operating item of hardware and each door, to ensure proper operation or function of every unit. Replace those that cannot be adjusted to operate freely and

smoothly as intended for the application made. Clean adjacent surfaces soiled by hardware installation.

Final Adjustment: Wherever hardware installation is made more than one month prior to acceptance or occupancy of a space or area, return to the work during the week prior to acceptance or occupancy, and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.

HARDWARE SCHEDULE:

Group No. 1: **[NOTE TO DESIGNER: EXTERIOR FULL GLASS STEEL SINGLE DOOR]**

Butts:	1 1/2 pair Mckinney T4A3386 4.5 x 4.5 x BHMA 630.
Exit Device:	1 Sargent 8813-EPL x LL x BHMA 630.
Closer:	1 LCN P4041 x BHMA 673.
Weatherstripping:	1 set Pemko 319CN x S88 x BHMA 628.
Door Bottom:	1 Pemko 430CRL x BHMA 628.
Threshold:	1 Pemko 254X4AFG x BHMA 628.
Floor Stop:	1 Ives 442 x BHMA 628.

Group No. 2: **[NOTE TO DESIGNER: EXTERIOR FLUSH SINGLE DOOR]**

Butts:	1 1/2 pair Mckinney T4A3386 4.5 x 4.5 x BHMA 630.
Lockset:	1 Best 84-7-C-15D-S3 x BHMA 626.
Closer:	1 LCN P4041 x BHMA 673.
Weatherstripping:	1 set Pemko 319CN x S88 x BHMA 628.
Door Bottom:	1 Pemko 430CRL x BHMA 628.
Threshold:	1 Pemko 254X4AFG x BHMA 628.

Group No. 3: **[NOTE TO DESIGNER: EXTERIOR FULL GLASS STEEL PAIR DOOR]**

Butts:	3 pair Mckinney T4A3386 4.5 x 4.5 x BHMA 630.
Exit Device:	2 Sargent MD8613-EPL x LL x BHMA 630.
Closer:	2 LCN P4041 x BHMA 673.
Astragal:	1 set Pemko 354CM x BHMA 628.
Weatherstripping:	1 set Pemko 319CN x S88 x BHMA 628.
Door Bottom:	2 Pemko 430CRL x BHMA 628.
Threshold:	1 Pemko 254X4AFG x BHMA 628.

Group No. 4: **[NOTE TO DESIGNER: EXTERIOR FLUSH PAIR DOOR]**

Butts:	3 pair Mckinney T4A3386 4.5 x 4.5 x BHMA 630.
Lockset:	1 Best 84-7-C-15D-S3 x BHMA 626.
Bolt:	1 set Glynn-Johnson FB9/FB10 x DP1 x BHMA 630.
Closer:	1 LCN P4041 x BHMA 673.
Astragal:	1 set Pemko 354CM x BHMA 628.
Weatherstripping:	1 set Pemko 319CN X S88 x BHMA 628.
Door Bottom:	2 Pemko 430CRL x BHMA 628.
Threshold:	1 Pemko 254X4AFG x BHMA 628.

Group No. 5: **[NOTE TO DESIGNER: USE A LOCKSET WHEN USED FOR RESTROOMS FOR BOTH GENDERS]**

Butts:	1 1/2 pair Stanley FBB168 4.5 _ 4.5. Finish ACED
Push:	Corbin 76590 Aluminum.
Pull:	Corbin 76590H Aluminum.
Kickplates:	12 x 34 x 1/16 in. Stainless Steel.
Closer:	LCN Super Smoothee 4040.

Group No. 6: **[NOTE TO DESIGNER: INTERIOR NONRATED SINGLE DOOR]**

Butts:	1 1/2 pair Mckinney T4A3386 4.5 x 4.5 x BHMA 626.
Lockset:	1 Best 84-0-N-15D-S3 x BHMA 626.
Silencers:	5 Glynn-Johnson 64.
Wall Stop:	1 Glynn-Johnson 50C x BHMA 628.

Group No. 7: **[NOTE TO DESIGNER: INTERIOR NON-RATED RESTROOM DOOR]**

Butts:	1 1/2 pair Mckinney T4A3386 4.5 x 4.5 x BHMA 626.
Lockset:	1 Best 84-0-N-15D-S3 x BHMA 626.
Closer:	1 LCN 4041T x BHMA 673.
Seals:	1 set Pemko S88.
Kickplate:	1 12 x 34 x 1/16 in. x beveled edge x BHMA 630.
Wall Stop:	1 Glynn-Johnson 50C x BHMA 628.

Group No. 8: **[NOTE TO DESIGNER: INTERIOR NON-RATED JANITOR DOOR]**

Butts:	1 1/2 pair Mckinney TA3386 4.5 x 4.5 x BHMA 626.
Lockset:	1 Best 84-7-D-15D-S3 x BHMA 626.
Silencers:	5 Glynn-Johnson 64.
Kickplate:	1 12 x 34 x 1/16 in. x beveled edge x BHMA 630.
Wall Stop:	1 Glynn-Johnson 50C x BHMA 628.

Group No. 9: **[NOTE TO DESIGNER: INTERIOR FIRE-RATED SINGLE DOOR]**

Butts:	1 1/2 pair Mckinney T4A3786 4.5 x 4.5 x BHMA 652.
Lockset:	1 Best 84-7-**[INSERT FUNCTION CODE]**-15D-S3 x BHMA 626.
Closer:	1 LCN 4041T x BHMA 673.
Seals:	1 set Pemko S88.
Wall Stop:	1 Glynn-Johnson 50C x BHMA 628.

Group No. 10: **[NOTE TO DESIGNER: INTERIOR FIRE-RATED HOLD-OPEN SINGLE DOOR. COORDINATE WITH ELECTRICAL REQUIREMENTS.]**

Butts:	1 1/2 pair Mckinney T4A3786 4.5 x 4.5 x BHMA 652.
Lockset:	1 Best 84-7-**[INSERT FUNCTION CODE]**-15D-S3 x BHMA 626.
Closer:	1 LCN 4041T x BHMA 673.
Seals:	1 set Pemko S88.
Holder:	1 Rixson 990 Series x BHMA 689.

Group No. 11: **[NOTE TO DESIGNER: INTERIOR FIRE-RATED (1.5 HR. MAX.) CROSS-CORRIDOR PAIR DOOR]**

Butts:	3 pair Mckinney T4A3786 4.5 x 4.5 x BHMA 652.
Lockset:	1 Best 84-7-**[INSERT FUNCTION CODE]**-15D-S3 x BHMA 626.
Bolt:	1 set Glynn-Johnson COR2 x FB7/FB8 x DP2 x BHMA 630.
Closer:	2 LCN 4041T x BHMA 673.
Seals:	1 set Pemko S88.
Wall Stop:	2 Glynn-Johnson 50C x BHMA 628.

FIELD QUALITY CONTROL:

Surveillance will be performed by Contractor's Representative to verify compliance of the work to the drawings and specifications.

END OF SECTION 08700

SECTION 08800--GLASS AND GLAZING

PART 1--GENERAL

SUMMARY:

Provide glass and glazing as shown on the drawings.

Section Includes, but is not limited to furnish and install:

Window units

Vision lites in doors

Glazing in entrance doors

Related Sections:

Section 08110, Steel Doors and Frames for vision lites

REFERENCES:

The following documents, including others referenced therein, form part of this Section to the extent designated herein:

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI Z97.1 Safety Standard for Architectural Glazing Materials

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C1036 Standard Specification for Flat Glass
ASTM C1048 Standard Specification for Heat Treated Flat Glass - Kind HS, Kind FT Coated and Uncoated Glass
ASTM E774 Standard Specification for the Classification of the Durability of Sealed Insulating Glass Units

CODE OF FEDERAL REGULATIONS (CFR)

16 CFR 1201 Safety Standard for Architectural Glazing Materials

INSULATING GLASS CERTIFICATION COUNCIL (IGCC)

NATIONAL CERTIFIED TESTING LABORATORIES (NCTL)

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 80 Standard for Fire Doors and Fire Windows

SAFETY GLAZING CERTIFICATION COUNCIL (SGCC)

UNDERWRITER'S LABORATORIES (UL)

DEFINITIONS:

Glass: "Glass" includes prime glass, processed glass and fabricated glass products.

Glazing: "Glazing" includes glass installation and materials used to install glass.

Deterioration of Coated Glass: Defects developed from normal use that are attributable to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning coated glass contrary to the manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in the coating.

Deterioration of Laminated Glass: Defects developed from normal use that are attributable to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning coated glass contrary to the manufacturer's written instructions. Defects include edge separation, delamination materially obstructing vision through the glass, and blemishes exceeding those allowed by the referenced laminated glass standard.

Deterioration of Insulated Glass: Defects developed from normal use that are attributable to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning coated glass contrary to the manufacturer's written instructions. Defects include obstruction of vision by dust, moisture, or film on interior surfaces of glass.

SYSTEM DESCRIPTION:

General: Provide glazing systems that are produced, fabricated and installed to withstand normal thermal movement, wind loading and impact loading, where applicable, without failure, including glass breakage, failure of sealants or gaskets to remain watertight and airtight, deterioration of glazing materials, and any other defects in construction.

Thickness: Nominal thickness of glass in exterior walls shall be 1/4-in. minimum. Nominal thickness of glass in interior applications shall be 3/16" minimum.

SUBMITTALS:

Submittals include, but are not limited to the following:

Product Data: Submit product data for each glass product and glazing material indicating compliance with the requirements of these specifications, or

Certificates: Submit product certificates signed by the glazing materials manufacturer's authorized representative certifying that their products comply with the requirements of these specifications. Separate certifications are not required for glazing materials bearing manufacturer's permanent labels designating type and thickness of glass, provided labels represent a quality control program of a recognized certification agency or independent testing agency acceptable to authorities having jurisdiction.

Warranties: Submit warranties as called for under WARRANTY.

See Section 01300, Submittals and the Vendor Data Schedule for additional submittal requirements.

QUALITY CONTROL:

.

Single Source Responsibility: Provide glass from one source for each type of glass product where possible. Provide glazing accessories from one source for each product and installation method.

Mock-up: Before glazing, build mock-ups of each glass product used on the project to demonstrate aesthetic effects and qualities of materials and execution. Build mock-ups a minimum of 12" square. Obtain Contractor's approval of mock-up before starting fabrication. Maintain mock-ups during construction in an undisturbed condition as a standard for judging the completed work. The mock-up may become a part of the completed work.

DELIVERY, STORAGE AND HANDLING:

Handle glazing materials and glass to comply with manufacturer's instructions and as needed to prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sunlight, or other causes.

Where insulating glass units will be exposed to substantial altitude changes, comply with insulating glass fabricator's recommendations for venting and sealing to avoid hermetic seal ruptures.

SITE CONDITIONS:

Environmental Conditions: Comply with manufacturer's recommendations for installation temperatures. Do not install when glazing substrates are wet from rain, frost, condensation or other causes.

WARRANTY:

General: Warranties specified in this section shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents.

Manufacturer's Warranty: The Subcontractor shall provide a warranty agreeing to furnish replacements for those glass units that deteriorate as defined in the "Definitions" article, f.o.b. the nearest shipping point to the project site, within the specified warranty period of 5 years from the date of Substantial Completion.

PART 2--PRODUCTS:

GLASS PRODUCTS:

Float Glass: Quality q3, Type I, Class 1 for clear and Class 2 for tinted, heat absorbing, and light reducing, conforming to ASTM C1036.

Uncoated, Clear, Heat Strengthened (HS) or Fully Tempered (FT) Float Glass: Quality q3, Type I, Class 1, Condition A, Kind HS or FT, conforming to ASTM C1048.

Uncoated, Tinted, Heat Strengthened (HS) or Fully Tempered (FT) Float Glass: Quality q3, Type I, Class 2, Condition A, Kind HS or FT, conforming to ASTM C1048.

Wired Glass: Quality q8, Type II, Class 1, polished both sides, with diamond mesh., conforming to ASTM C1036.

Insulating Glass: Provide preassembled units consisting of organically sealed lites of glass separated by dehydrated air spaces, complying with ASTM E774.

For properties of individual glass lites making up insulated glass units, refer to requirements for particular glass to be used (e.g. uncoated, tinted, HS, etc.)

Safety Glass: Safety glass shall be Category II materials complying with testing requirements of 16 CFR 1201 and ANSI Z97.1 and shall be permanently marked by the SGCC or a certification agency acceptable to the Contractor's Representative.

Fire rated Glass: Fire rated glass shall comply with the requirements of NFPA 80.

GLASS MANUFACTURERS:

Subject to compliance with requirements and product needed, provide products by one of the following:

AFG Industries
Artistic Glass Products Co.
Cardinal IG
Saint-Cobain
Falconer Glass Industries
Glasstemp, Inc.
Guardian Industries Corp.
HGP Industries
PPG Industries, Inc.
Spectrum Glass Products, Inc.
Tempglass
Viracon, Inc.
Ashai Glass Co.
Central Glass Co., Ltd.
Nippon Sheet Glass, Ltd.
Pilkington Sales, Ltd.

GLAZING ACCESSORIES:

General: Provide glazing sealants, tapes, gaskets and other miscellaneous glazing materials that will provide units that will meet the warranty requirements.

Sealant Color: Provide black color for exposed applications.

PART 3--EXECUTION:

General: Comply with recommendations of manufacturers of glass, sealants, gaskets and other glazing materials, and of referenced glazing publications.

Cleaning and Protection: Protect exterior glass from breakage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels.

Protect glass from contact with contaminating substances resulting from construction operations including weld spatter. If, despite such protection, contaminating substances do come into contact with glass, remove them immediately as recommended by the glass manufacturer.
Remove and replace glass that is broken, chipped, cracked , abraded, or damaged in any way, including for natural causes, accidents and vandalism during the construction period.
Damaged or broken glass shall be removed from the project site and disposed of off site.

Clean glass on both faces not more than 4 days prior to the date scheduled for completion of the project.

FIELD QUALITY CONTROL:

Surveillance will be performed by the Contractor's Representative to verify compliance of the work to the drawings and specifications.

END OF SECTION 08800

SECTION 08905—ALUMINUM WINDOW WALL

PART 1--GENERAL

SUMMARY:

The extent of window wall work is indicated by drawings and provisions of this section.

Section Includes: Work includes, but is not limited to:

Furnish and install aluminum window and frames where shown on drawings.

Related Sections:

Section 08800, Glass and Glazing

REFERENCES:

The following documents, including others referenced therein, form a part of this Section to the extent designated herein:

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM B 221	Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wires, Profiles and Tubes
ASTM E 283	Standard Test Method for Steady-State Thermal Performance of Building Assemblies by Means of a Guarded Hot Box
ASTM E 331	Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference

ALUMINUM ASSOCIATION (AA)

AA	Standard AA-M12 C22 A44

AMERICAN ARCHITECTURAL MANUFACTURERS ASSOCIATION (AAMA)

AAMA 1503.1	Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Window, Door and Glazed Wall Sections

SUBMITTALS:

Submittals include, but are not limited to the following:

[DELETE ANY ITEMS FROM THE FOLLOWING THAT ARE NOT NEEDED]

Product Data: Submit product data indicating compliance with the requirements of this Section, or

Certification: Submit product certificates signed by the product manufacturer's representative that the products comply with the requirements of these specifications.

Shop Drawings: Submit shop drawings including installation instructions.

See Section 01300, Submittals and the Vendor Data Schedule for additional submittal requirements.

QUALITY CONTROL:

Leakage Resistance, Water and Air: Provide manufacturer's standard window wall system which has been tested to demonstrate permanent resistance to leakage as follows with a test pressure differential of 20% of design loading:

Air Leakage: Not more than 0.06 cfm per sq. ft wall area, as determined by ASTM E 283.
Water Penetration: No uncontrolled leakage as determined by ASTM E 331.

Condensation Requirements: Provide thermal-break construction which has been tested and certified by manufacturer, per AAMA 1503.1, with 0° F (-18° C) outside and 25% relative humidity inside, to provide a condensation resistance factor (CRF) of at least 59.

Thermal Performance: Installed curtain wall U Value shall be .58 or better.

DELIVERY, STORAGE AND HANDLING:

All materials shall be delivered to the job in original unbroken containers or bundles and stored in a place protected from damage by tampering and/or exposure to the weather.

The Subcontractor shall inspect for damage. No damaged material shall be used.

PART 2--PRODUCTS

ACCEPTABLE MANUFACTURERS:

Manufacturer: Window wall system shall be as manufactured by Kawneer Co., Inc.; Niles, MI or approved equal.

Aluminum Stick-Type System:

General Description: Drawings and specifications are based upon the TriFab 451T framing systems as manufactured by the Kawneer Company, Inc. Extrusions shall be 6063-T5 alloy and temper (ASTM B 221 alloy G.S. 10A-T5). Fasteners, where exposed, shall be aluminum, stainless steel or zinc plated steel in accordance with ASTM A 164. Frame members shall be 2 x 4-1/2 in. in dimension, Perimeter anchors shall be aluminum or steel, providing the steel is properly isolated from the aluminum. Glazing gaskets shall be EPDM elastomeric extrusions. Glazing units of 1-in. thickness shall be compatible with this framing system.

WINDOW WALL FINISHES:

[NOTE TO SPECIFIER, SEVERAL FINISHES ARE AVAILABLE INCLUDING COLORS AT ADDITIONAL COST].

All exposed framing surfaces shall be free of scratches and other serious blemishes.

Aluminum moldings shall be given a caustic etch followed by an anodic oxide treatment to obtain an Architectural Class 1 anodic coating with integral color conforming to Aluminum Association Standard AA-M12 C22 A44. Color shall be No. 40 Dark Bronze.

PART 3--EXECUTION

INSTALLATION/ERECTION:

Installation: All glass framing shall be set in correct locations as shown in the details and shall be level, square, plumb and in alignment with other work in accordance with the manufacturer's installation instructions and approved shop drawings. All joints between framing and the building structure or foundation shall be sealed in order to secure a watertight installation.

Protection and Cleaning: After installation, the Subcontractor shall adequately protect exposed portions of aluminum surfaces from damage by grinding and polishing compounds, plaster, lime, acid, cement, or other contaminants. The Subcontractor shall be responsible for final cleaning.

FIELD QUALITY CONTROL:

Surveillance will be performed by the Contractor's Representative to verify compliance of the work to the drawings and specifications.

END OF SECTION 08905

SECTION 09250--GYPSUM DRYWALL

PART 1--GENERAL

SUMMARY:

Subcontractor shall provide all material, labor, and equipment to install gypsum wallboard including all metal corners, accessories, and taping, complete and ready for painting.

Section Includes: Work includes, but is not limited to:

Metal stud and gypsum wallboard walls at all interior walls as shown on drawings.

5/8" type 'x' gypsum wallboard covering over fire retardant plywood telephone board in electrical room.

Metal stud and 5/8" type 'x' gypsum wallboard at all fire rated construction where indicated on drawings.

REFERENCES:

The following documents, including others referenced therein, from part of this Section to the extent designated herein:

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 36	Specification for Gypsum Wallboard
ASTM C 475	Specification for Joint Treatment Materials for Gypsum Wallboard Construction
ASTM C 630	Specification for Water-Resistant Gypsum Backing Board
ASTM C 840	Specification for Application and Finishing of Gypsum Board
ASTM C 1002	Specification for Steel Drill Screws for Application of Gypsum Board.

SUBMITTALS:

No submittals required unless an "or equal" item is proposed.

QUALITY CONTROL:

Single Source Responsibility: Obtain gypsum board products from a single manufacturer, or from manufacturers recommended by the prime manufacturer of gypsum boards.

DELIVERY, STORAGE AND HANDLING:

Deliver gypsum drywall materials in sealed containers or bundles identified with manufacturer, name, brand, type and grade. Store in a dry, well ventilated space protected from weather, undercover and off the ground or floor.

Environmental Conditions:

Temperature shall be 55° F minimum day and night during entire joint operation and until building is occupied

Provide ventilation to eliminate excessive moisture

Avoid hot air drafts which will cause too rapid drying.

PART 2--PRODUCTS

MATERIALS:

Wallboard: Partitions shall be constructed with new tapered edge gypsum wallboard. Wallboard shall conform to ASTM C36. Fire rated wallboard shall comply with the requirements of ASTM C36, Type X.

Water Resistant Backing Board: ASTM C630, with tapered edges and of type and thickness indicated. Furnish maximum lengths available to minimize end-to-end butt joints. This wallboard shall be used throughout [restrooms] [showers] [laundry rooms] on all walls and ceilings.

Thickness: 5/8 in.

Screws: Screws for attachment of gypsum board shall be Type S for light gage steel framing (22 gage or lighter), Type S-12 for heavy gage steel framing (20 to 12 gage).

Tape and Cement: Tape and cement for finishing the joints shall be of material specifically manufactured for that purpose and shall be United States Gypsum Co., "Perf-A-Tape", or approved equal.

Metal Corners, Etc.: Steel edge trim and corner reinforcement shall be United States Gypsum Co., "200-B" and "Dur-A-Bead," respectively, or approved equals.

PART 3--EXECUTION

INSTALLATION:

Framing: The Subcontractor shall check the alignment of framing members and make necessary adjustments before proceeding with installation of the wallboard. Wall and ceiling framing shall be spaced 16 in. on center unless shown otherwise. Framing members shall be straight and in alignment, and headers shall be installed for solid support of fixture attachments, wherever necessary. Blocking shall be installed behind all wallboard edges and joints.

Wallboard: Cut and fit gypsum accurately, in the longest lengths possible, with long edges parallel or perpendicular to main framing. Joints on opposite sides of partitions shall not fall on the same stud. All field cut and rough edges shall be sanded smooth and straight. All joints shall be firmly butted together without damaging the edges of the wallboard. Screw wallboard securely to supports, spacing the fasteners not less than 3/8 in. nor more than 5/8 in. from edges and ends of the boards, 10in. to 12 in. o.c. Adjust power screwdriver to set heads in 1/32-in. dimple. Do not break face paper. If face is accidentally broken, apply second screw 2 in. away. Screws on adjacent ends or edges should be opposite each other. The boards shall be fastened at all intermediate studs, joists and blocking using the same spacing as that around edges. Steel corner-reinforcement shall be installed on all outside corners.

Water Resistant Gypsum Board Base for Ceramic Tile: Treat joints and fasteners to comply with directions of water-resistant joint compound manufacturer.

In areas to be tiled, treat fastener heads with water-resistant joint compound. Fill tapered edges in gypsum panels with water-resistant joint compound, embed joint tape firmly and wipe off excess compound; follow immediately with a second coat of water-resistant joint compound over
taping coat, being careful not to crown the joint. Fold and embed tape in all interior angles to form true angle.

In areas not to be tiled, treat fastener heads and embed tape as indicated above using water resistant joint compound but finish with 2 coats of joint compound used for regular gypsum board work.

Texturing: All gypsum board walls shall be provided with a light-textured surface using commercially available ready-to-use texturing products or by mixing joint compound with water to a thick paint consistency. Texture shall be applied with a roller, or other approved method.

PROTECTION OF WORK:

Subcontractor shall protect gypsum drywall work from damage and deterioration during the entire construction period.

No taping or texturing shall be done when temperature is below the manufacturer's recommended application temperature and in no case shall the temperature be below 40_ for 24 hr following application.

FIELD QUALITY CONTROL:

Surveillance will be performed by the Contractor's Representative to verify compliance of the work to the drawings and specifications.

END OF SECTION 09250